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ICSU ACTIVITIES IN THE FIELD OF STRATOSPHERIC OZONE, INCLUDING POSSIBLE GEOPHYSICAL AND BIOLOGICAL CONSEQUENCES OF OZONE DEPLETION

Presented by
ICSU/SCOPE

1. INTRODUCTION

ICSU has been involved institutionally in Stratospheric Ozone Studies since 1930 when a Sub-Commission on Ozone was established within IUGG. During the last two decades, the activities have expanded greatly, and now encompass :

(1) Experimental and theoretical investigations of stratospheric composition and processes ;

(2) Studies of the effects of Ozone depletion on climate ;

(3) Studies of the effects of Ozone depletion on the biosphere ;

(4) Reviews of relevant socio-economic Studies.

2. EXPERIMENTAL AND THEORETICAL INVESTIGATIONS OF STRATOSPHERIC COMPOSITION AND PROCESSES

The main ICSU activities in this field are within :

(1) IAMAP

The International Commission on Atmospheric Ozone, the International Commission on the Upper Atmosphere, and the International Commission on Atmospheric Chemistry and Global Pollution all sponsor international symposia which relate to the ozone depletion problem. A major reference work is the Proceedings of the 1974 International Conference on the Structure, Composition and General Circulation of the Upper and lower atmospheres and Possible Anthropogenic Influences, available from IAMAP for US$ 10. (2 volumes).

(2) JOINT IAMAP/IAGA SYMPOSIA

A symposium on Stratospheric Ozone was held in September 1976, sponsored by NASA with IAMAP/IAGA cosponsorship. Information on that meeting can be obtained from Dr D.H. Hunten, NASA, Washington, D.C.

Another joint symposium is to be held in Seattle, Washington in August, 1977 : "Minor neutral constituents in the middle atmosphere : Chemistry and Transport."

(3) COSPAR WORKING GROUP 6

Spectrophotometric measurements are being taken on Nimbus 6 at the 9.6 micrometer wavelength. These measurements will be repeated on Nimbus G in 1978. The COSPAR W/G 6 is encouraging the processing of these data to derive global ozone distribution, making several

years of satellite ozone observations available to the scientific community for research. This will be particularly useful for models of the three-dimensional patterns of stratospheric ozone.

3. STUDIES OF THE EFFECTS OF OZONE DEPLETION ON CLIMATE

The effects of Ozone depletion on climate are being studied within the ICSU-WMO GARP Programme. The Joint Organizing Committee of GARP should continue to provide the leadership for the worldwide programme.

4. STUDIES OF THE EFFECTS OF OZONE DEPLETION ON THE BIOSPHERE

The ICSU body with a direct interest in the biological effects of ozone depletion is the International Photobiology Association, which is a Commission of IUBS. A symposium on the biological effects of ozone depletion was held in Rome in September 1976. The British Photobiology Association, an affiliate of IPA, is sponsoring a symposium in June 1977, and other meetings will be organized as appropriate.

5. REVIEWS OF RELEVANT SOCIO-ECONOMIC STUDIES

ICSU-SCOPE has organized an interdisciplinaty institute, MARC Chelsea, the Monitoring and Assessment Research Centre at Chelsea College, London, England. This Centre has the capability to undertake reviews of socio-economic studies related to environmental management. One such review is the report (in press) by Dr. L. Machta on the ozone depletion problem.

Other relevant reviews could be undertaken upon request.

6. NATIONAL ACTIVITIES

ICSU provides a focal point for international coordination and exchange of results. The main research studies are carried out within countries, through universities, academies of science, research councils and government departments.

The programmes are too numerous to be summarized here.

7. CONCLUSIONS

ICSU represents a very broad spectrum of scientific interests and capabilities through its adhering Unions, National Academies and Research Councils. The ICSU activities in the field of ozone depletion, including possible geophysical and biological consequences, are illustrative of the ways in which ICSU provides a mechanism for international cooperation amongst scientists.

ICSU is both initiative and responsive. ICSU continues to press forward the boundaries of knowledge on ozone depletion, while at the same time providing expert scientific opinion and advice upon request to governmental and intergovernmental bodies. The ICSU-WMO relationships are exemplary.

APPENDIX I

LIST OF ICSU CONTACTS

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Dr. S. RUTTENBERG, Secretary of IAMAP and Secretary of COSPAR W/G 6, NCAR, BOULDER, Colorado, U.S.A.

Dr N. FUKUSHIMA, Secretary of IAGA, Geophysics Research Laboratory, University of Tokyo, TOKYO, Japan.

Dr P.H. BONNEL, IUBS Executive Secretary, 51 Boulevard de Montmorency, 75016 PARIS, France.

Dr. R.B. SETLOW, Immediate Past President, IUBS Commission on Photobiology, Brookhaven National Laboratory, LONG ISLAND, N.Y. U.S.A.

APPENDIX 2

ACRONYMS

COSPAR	Committee on Space Research
GARP	Global Atmospheric Research Programme
IAGA	International Association of Geomagnetism and Aeronomy
IAMAP	International Association of Meteorology and Atmospheric Physics
ICSU	International Council of Scientific Unions
IPA	International Photobiology Association
IUBS	International Union of Biological Sciences
IUGG	International Union of Geodesy and Geophysics
SCOPE	Scientific Committee on problems of the Environment

ICSU Action Proposals

(1) Coordination

If UNEP decides to establish a coordinating committee, ICSU would be willing to provide members or observers (an atmospheric physicist and a biologist).

(2) The Meteorological Problem

(a) At its General Assembly in Canberra, 1979, IUGG would organize:
  (1) an overview symposium on the atmospheric problem;
  (2) a specialist symposium on the air-sea exchanges of relevant trace gases such as N_2O and halocarbons;

(b) The International Ozone Commission would organize in 1980, an international Symposium on Ozone, with special emphasis on the problem of "greenhouse" effects and of ozone monitoring.

(c) At its meeting in Austria in 1978, COSPAR would organize a workshop on rocket/satellite monitoring of ozone, including ground-truth requirements.

(3) The Biological Effects Problem

(a) With appropriate financial support, ICSU would be prepared to develop an International Research Centre for Photobiology. This could follow the institutional pattern of the ICSU/SCOPE Monitoring and Research Centre, Chelsea College, London, England. Such a centre would have two functions, namely:
  (1) to act as a coordinating and information processing center for UV photobiology pertaining to the ozone problem;
  (2) to initiate and sponsor appropriate research programmes at university or other research centres around the world.

(b) The International Association for Photobiology would organize a three day specialist symposium on "Effects of UVB radiation in biological systems" in 1979. The proceedings of the meeting should be published. A one day follow-up workshop on UV and skin cancer would be organized at the International Congress on Photobiology, France, 1980.